TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

CONTRACTOR	CONTRACT NO./TASK NO.		JOB ORDER NUMBER	APPROP. FY
	NAS5- TASK NO.	AMENDMENT		
QSS Group, Inc.	99124 133		586-315-60-12-89	00
			586-315-60-24-89	99

TASK TITLE: (NTE 80 characters; include Project name)

Science Data Systems Planning and Prototyping

APPROVALS: (Type or print name and sign)

	DATE	ORG CODE	MAIL CODE	PHONE
ASSISTANT TECHNICAL REPRESENTATIVE (OR TASK MONITOR) Mary G. Reph Mary G. Reph	8/31/99	586	586	(301)286-1006
BRANCH HEAD Mary Ann Esfandiari Mary A Esfandiari	9/1/99	CODE 586		PHONE (301)286-2406
CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) Robert S. Lebair, Jr. Robert S Lebair	9/2/99	CODE 560		PHONE 301-286-6588

FLIGHT HARDWARE, CRITICAL GSE OR SOFTWARE? (IF YES, NEED CODE 303 CONCURRENCE NEXT BLOCK)	CONTRACTING OFFICER'S QUALITY REP.	DESIGNATED FAM:
[x] NO [ ] YES	Larry Moore	

The contractor shall identify and explain the reason for any deviations, exceptions, or conditional assumptions taken with respect to this Task Order or to any of the technical requirements of the Task Order Statement of Work and related specifications. The contractor shall complete and submit the required Reps and Certs.

(To be completed by Contracting Officer)
C.O. Requested Quote on:
Date: SEP - 2 1999

Contractor will develop specification or statement of work under this task for a future procurement. [x] NO [ ] YES

Flight hardware will be shipped to GSFC for testing prior to final delivery. [x] NO [ ] YES [ ] N/A

Government Furnished Property/Facilities: [ ] NO [x] YES -- SEE LIST OF GFP (offsite only) / FACILITIES (onsite only)

Onsite Performance: [x] NO [ ] YES If yes: [ ] TOTAL [ ] PARTIAL
If partial, indicate onsite work in SOW by asterisk (*)

Surveillance Plan Attached: [x] NO [ ] YES

Highlighted Contract Clauses: *(to be completed by Contracting Officer)*

The effective date of this task order is October 6, 1999.

INCENTIVE FEE STRUCTURE (check one)

(See Contract NAS5-99124, Attachment K, Incentive Fee Plan)

	_x_ No. 1	___ No. 2	___ No. 3	___ No. 4	___ No. 5
Cost	10%	50%	25%	25%	%
Schedule	15%	25%	25%	50%	%
Technical	75%	25%	50%	25%	%

(To be completed by Contracting Officer)

The target cost of this task order is $ 318,447.
The target fee of this task order is $ 20,699.
The total target cost and target fee of this task order as contemplated by the Incentive Fee clause of this contract is $ 339,146.

The maximum fee is $ 30,252.
The minimum fee is $0.

AUTHORIZED SIGNATURE:

THIS TASK ASSIGNMENT IS ISSUED ACCORDING TO THE CONTRACT CLAUSE "TASK ASSIGNMENTS AND REPORTS"

Lorrie L. Eakin — SIGNATURE OF CONTRACTING OFFICER

10/6/99 — DATE

Lorrie L. Eakin
Contracting Officer — TYPED NAME OF CONTRACTING OFFICER

CONTRACTOR'S ACCEPTANCE:

AUTHORIZED SIGNATURE _____ DATE _____

GSFC FORM 703-1845 12/98 (OLDER VERSIONS ARE OBSOLETE)

DISTRIBUTION: CONTRACTOR, CONTRACTING OFFICER, COTR, CODE 303, RESOURCES ANALYST, ASSISTANT TECHNICAL REPRESENTATIVE

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REQUEST FOR TASK PLAN / TASK ORDER

CONTRACTOR	CONTRACT NO./TASK NO.		
	NAS5-	TASK NO.	AMENDMENT
QSS Group, Inc.	99124	133	

Applicable paragraphs from contract Statement of Work:

STATEMENT OF WORK: (Continue on blank paper if additional space is required)

(See attached SOW.)

PERFORMANCE SPECIFICATIONS:

(See attached SOW for specifications on plans and reports.)

APPLICABLE DOCUMENTS:

None

TASK END DATE: 9/30/00

MILESTONES/DELIVERABLES AND DATES:

(See attached SOW.)

PERFORMANCE STANDARDS:

Schedule: Adherence to schedule developed
Technical: ATR's acceptance of deliverables (see SOW for additional detail)

FINAL DELIVERY DESTINATION (NAME, BLDG, ROOM):
Mary Reph, Code 586, Bldg 23, Room W231

GSFC FORM 703-1845a

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

TASK: 133

STATEMENT OF WORK:

SOW for Science Data Systems Planning and Prototyping

Introduction/Background

The Science Data Systems Branch (Code 586) and the Advanced Data Management and Analysis Branch (Code 587), within the Information Systems Center (ISC) (Code 580) support the Earth and Space Science communities at the Goddard Space Flight Center by providing a wide range of science data processing systems in response to technical requirements. Branch personnel partner with flight projects, science investigators, other GSFC Directorates and Centers, universities, other government agencies and commercial enterprises to develop, consult, advise on systems for science data capture, level zero and higher level data processing, data archival, data distribution, data analysis, data mining, data visualization. These systems may include various levels of science and ancillary data processing starting from the point of their reaching the ground until they are delivered to scientists or scientific data users for analysis. The systems may range in complexity from those that handle single, small instrument data streams with a limited user community to large multi-mission, distributed data systems serving diverse multi-disciplinary user communities. This work also includes the development of prototypes, introducing new techniques for data display, data packaging, and/or the development of reuse software tool libraries designed for the science community.

These two Branches were established during a GSFC reorganization process (12/97). This Center-wide reorganization resulted in a shift in focus from providing operational systems towards providing more direct support to the science organizations and labs with a focus on science data processing and science data visualization. Subsequently, both Codes 586 and 587 are seeking contractor support in two areas: both evolutionary and revolutionary improvements in the area of science data processing (i.e., reduction of data volume on-board, more generic algorithms, science data processing pipelines for both space and earth science data, etc.) and identification of key areas of concern and a prototype design for science data processing in preparation for the future era of constellation and nanosat type missions. This work will allow us to prove some of the latest technologies, thereby reducing the risks of incorporating these into the new missions working in a cost-conscious environment.

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REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

TASK: 133

STATEMENT OF WORK:

Task Description:

The contractor shall perform the following activities:

- Identify the requirements of future constellation and nanosat missions in the area of science data processing and analysis and compare with existing systems. Identify areas of concerns (such as volume of data, multiple sources of data, cost of operations under current paradigm), suggest methods to improve, and develop a preliminary design for a science data processing system that addresses these types of missions.

- Identify a science data processing algorithm (space or Earth science data) that is currently used to eliminate or reduce data on the ground (i.e., elimination of cloud cover data) and integrate this into the existing Flat Sat Architecture. Demonstrate volume of data reduced if this process were performed on-board, identify pros/cons and any limitations to integrating this into a potential future flight data system, and suggest any ROM cost savings.

- Identify science data processing and analysis requirements for the SWIFT - a panchromatic Gamma Ray Burst MIDEX Mission. Investigate potential COTS/GOTS for meeting these requirements, identifying cost and technical issues/concerns. In particular, investigate the suitability of the OPUS science data pipeline processing system -- a science data processing system developed at the STScI for the Hubble Space Telescope (HST) supporting the automated conversion of gigabits of raw telemetry to useful science and engineering products, and used on the Far Ultraviolet Spectroscopic Explorer (FUSE) mission. Examine and compare the data processing requirements for previous missions that might have used these packages with the data processing requirements of SWIFT. Specifically, look at data volume, throughput/unit time, number of science and engineering products, types of products, re-usability of existing systems, key requirements of each mission, lessons learned, etc. Prepare a technical report utilizing key comparison parameters, tables, graphs, SLOC, etc to show suitability and make a recommendation for SWIFT. Develop and implement prototypes to address any major issues/concerns and prove any new approaches or methods.

- Develop a web-site for both Code 586 and Code 587 to highlight the specific competencies of these branches, as well as, to convey the results of this task. In particular, include links to highlight skill areas, significant accomplishments, positions available, papers written, etc. Interface with existing ISC Web home page and develop the necessary material behind the ISC page links.

- Provide monthly status reports and attend meetings, as requested.

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Contract NAS5-99124

TASK: 133

STATEMENT OF WORK:

In order to perform these activities, the contractor shall work cooperatively with civil servants supporting this work, as well as with other contractors with efforts on-going within other ISC branches, to ensure complementary and non-duplicative achievement of goals. It is expected that the contractor will be able to leverage from these efforts to provide solutions and products that enhance the overall knowledge and strategic goals for the ISC.

The Science Data Systems Laboratory is available for performance of the described work.

Deliverables:

The contractor shall deliver at a minimum the following documents resulting from the above-described activities. Other deliverables may be mutually determined as the result of these activities.

- Comparative study on science data processing needs and concerns in the upcoming era of both nanosat and constellation type missions in both report and presentation form using tables and other graphics, as needed, to clearly illustrate key points. Utilize familiar existing NASA missions in comparative analyses.
- Demonstration of the integration of a selected science data processing algorithm into the existing Flat Sat Architecture along with an accompanying report showing data volume reduced/time, process followed to integrate into the existing architecture, problems encountered, pros/cons and potential limitations on utilizing this on a future flight mission and suggest any ROM cost savings gained.
- Recommendations on future growth potential in both the science data processing for constellation/nanosats and data volume reduction techniques for either on-board or ground processing, including recommendations on COTS usage, development projects that would enhance either of these two areas, and a clear indication on future directions.
- A feasibility study for meeting the science and data processing and analysis requirements of the SWIFT mission, including recommendations on the use of COTS/GOTS.
- Demonstration of SWIFT Prototype, and accompanying report documenting results and lessons-learned.
- Final reports incorporating comments from ATR
- Initial code and quarterly updates for a web-site for Code 586/587
- Monthly technical progress report

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Contract NAS5-99124

TASK: 133

STATEMENT OF WORK:

Schedule:

These activities are to be performed over course of a one-year task. Deliverables listed above are to be provided per the following schedule:

Nanosat and Constellation Study/Presentation	12/30/99
Flat Sat Demonstration/Report	3/27/00
Nanosat Processing Recommendations	7/27/00
Swift Feasibility Study	~~XX/XX/XX~~ 2/27/00
Swift Prototype Demonstration	~~XX/XX/XX~~ 5/28/00
Swift Prototype Report	~~XX/XX/XX~~ 8/27/00
Web Page Updates	Initial: 12/30/99, quarterly thereafter: 3/31/00, 6/30/00, 9/30/00
Technical Progress Report	15th of each month
Final Reports	9/30/00

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REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

TASK: 133

STATEMENT OF WORK:

Qualitative and Quantitative Performance Metrics:

The following lists both quantitative and qualitative metrics that will be used to measure the technical performance of all of the activities described in this SOW. Qualitative metrics are used where performance is event-driven and relies on interaction with the user community, coordination with others, and other associated factors.

Evaluation Item	Metrics
Management	• Accomplishment of objectives • Clear incremental progress • Efficient and appropriate staffing • Responsiveness to issues posed by Branch • Coordination with and good working relationship with task lead, and other designated points of contact within the ISC • Flexibility within scope of the contract • Schedule adherence
Technical Objectives	• Use of recent and relevant NASA/GSFC mission data • Comprehensive picture from which to draw accurate conclusions
Deliverables	• Technical accuracy, use of graphics to illustrate point, clear message • Appropriateness to Branch and NASA/GSFC community use • Well-written report, use of table or illustrative graphics to clarify points
Costs	• Within agreed upon costs